MEDICAL RESEARCH COUNCIL

16th October, 1951.

Dr. S. Spiegelman,
Department of Bacteriology,
University of Illinois,
362 Noyes Laboratory of Chemistry,
Urbana, Ill.

Dear Spiegelman,

Many thanks for your letter of the 1st October. Since writing
to you I have, of course, seen the recent issue of the Proc. Nat.
Acad. Sci. containing your last article. Many thanks also for all
the information you gave, which is very interesting. I should like
sometime to know if you have any scheme for visualizing how your
discrete particles, which are apparently inherited through the cytoplasm,
actually function in promoting enzyme synthesis.

As far as our own work goes, you have presumably seen my last paper
on penicillinase adaptation, since I sent you a reprint. We have since
followed that up by investigating the absorption of penicillin sulphur
on to the cells, using the same pretreatment technique as for adaptation
experiments, by means of S^{35}-labelled penicillin. We have found that
there is a pretty close correlation between the amount of penicillin
sulphur specifically fixed on the cells and the effect of penicillin in
stimulating subsequent production of penicillinase in a penicillin-free
medium, following pretreatment at $0°$ plus thorough washing of cells.
In this particular case at least, there seems to be fairly good evidence
that some sort of specific interaction between penicillin and a specific
penicillin receptor within the cells is first necessary in order for the
cells to adapt to penicillinase formation. It is interesting that the
amounts of penicillin sulphur firmly fixed on the cells are exceedingly
small - maximal adaptation effect being achieved after the fixation of *about 100*
S per cell.

Do you yet know whether you will be coming to the Biochemical Congress
in Paris next year?

With best wishes,

Yours sincerely,

Martin Pollock

M. R. Pollock.